



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,060	06/08/2006	Imants Deme	TS9512 US	1596

23632 7590 05/16/2007
SHELL OIL COMPANY
P O BOX 2463
HOUSTON, TX 772522463

EXAMINER

PARVINI, PEGAH

ART UNIT	PAPER NUMBER
----------	--------------

1755

MAIL DATE	DELIVERY MODE
-----------	---------------

05/16/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/582,060	DEME, IMANTS	
	Examiner	Art Unit	
	Pegah Parvini	1755	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20060608</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: the spelling of the following terms "sulphur", "sulphide", "oxidising", and "pelletised" throughout the specification and abstract need to be changed to "sulfur", "sulfide", "oxidizing", and "palletized".

In addition, the phrase "al least" should be changed to "at least" in page 4, line 13 of the specification.

Appropriate correction is required.

Claim Objections

2. Claim 10 is objected to because of the following informalities: In step (ii), even though, indication is made to preheating aggregate, the end part of the segment reads as "to provide a hot bitumen".

For examining purposes, it is assumed that the segment should read as "to provide a hot aggregate".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 1755

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 4,756,763 to Etnyre in view of US Patent No. 3,960,585 to Gaw.

5. Regarding claims 1-2, Etnyre teaches a method of making and using asphalt composition in which a homogeneous mix of sulfur and asphalt is formed into a solid pellets which may be easily handled (column 1, lines 11-18; column 2, lines 10-12, 24-26). Etnyre, further, discloses sulfur-asphalt-filler pellets with excellent deformation resistance where the weight ratio of sulfur to asphalt is 1.5:1 and the overall mixture comprises 71.5% by weight sulfur-asphalt and 28.5% by weight calcium hydroxide (column 5, lines 66-68; column 6, lines 1-4). It is noted that based on the sulfur to asphalt ratio of 1.5:1, there exists 71.4 parts of sulfur and 28.6 parts of asphalt in the 71.5% by weight of sulfur-asphalt mixture.

Etnyre is silent to the use of H_2S -suppressant in the sulfur-asphalt pellet.

Gaw teaches an improved method of preparing cast sulfur-asphalt composition in which the emission of hydrogen sulfide is substantially suppressed using agents, such as free radical inhibitors and redox catalysts, which minimize hydrogen sulfide evolution at the high temperatures required for casting (column 1, lines 6-16, 55-57).

It would have been obvious to a person of ordinary skill in the art to modify Etnyre in order to include the hydrogen sulfide suppressant as that taught by Gaw motivated by the fact that because of environmental considerations, it is desirable to

Art Unit: 1755

reduce the amount of H₂S which is produced as a result of the addition of sulfur to the asphalt composition. It should be noted that as disclosed by Etnyre, the addition of sulfur to asphalt improves the strength and other properties of the pavement mixture and raises the flow point to a temperature well above the temperature at which the raw asphalt will flow and conglomerate (column 3, lines 29-38).

6. Regarding claim 3, Gaw teaches the use of free radical inhibitors, redox catalysts and mixtures thereof as hydrogen sulfite suppressant in the disclosed sulfur-asphalt composition (column 1, lines 55-58).

7. Regarding claim 4, Gaw teaches that some suitable conventional redox reagents or catalysts are iodine, copper salts and copper oxides, iron salts and iron oxides and cobalt salts and cobalt oxides (column 2, lines 13-17).

8. Regarding claim 5, Gaw teaches that among the redox catalysts, the iron chlorides, i.e. ferric chloride and ferrous chloride, appear to be the most effective and practical and preferred ones; in addition, the reference discloses that hydrated ferrous chloride is the optimum additive for large scale applications, i.e., pavement casting, because of its superior effectiveness and non-corrosivity (column 2, lines 19-28).

9. Regarding claim 6, Gaw discloses that the quantity of the H₂S-suppressant, generally, is a minor proportion of the total sulfur-asphalt composition with amounts as

Art Unit: 1755

low as 0.05% by weight of the total composition being sufficient to give the desired suppressant effect; it may, also, be higher, but not exceeding 0.5% by weight of the total composition (column 2, lines 40-48). The reference, moreover, discloses that the use of larger amounts is by no means excluded from the scope of this invention should conditions warrant such use (column 2, lines 48-50).

10. Regarding claim 7, Etnyre teaches the mixing of sulfur with hot liquid asphalt in the manufacturing plant and then forming it into solid pellets (column 2, lines 5-30). The reference does not expressly disclose the use of H₂S-suppressant with this mixing composition.

Gaw discloses that the cast sulfur-asphalt compositions are prepared by mixing and heating mixtures comprising sulfur and asphalt at elevated temperatures not exceeding 175°C that the evolution of hydrogen sulfide can substantially be reduced by the addition of hydrogen sulfide suppressant from the class consisting of free radical inhibitors and redox catalysts.

It would have been obvious to a person of ordinary skill in the art to modify Etnyre in order to include the addition of H₂S-suppressant as that taught by Gaw motivated by the fact that hydrogen sulfide suppressant reduces the amount of hydrogen sulfide, the toxic. In addition, as disclosed by Etnyre, forming the final composition into pellets comprising of sulfur and H₂S-suppressant makes the asphalt in an easily handleable form at a manufacturing plant (column 2, lines 10-12).

Art Unit: 1755

Furthermore, Etnyre discloses that the addition of sulfur to the mixture strengthen the ultimate paving composition (column 2, lines 21-23).

11. Regarding claim 8, Gaw teaches that the mixing temperature may be as high as 175°C but not exceeding it (column 1, line 45), which is above 113°C.

12. Regarding claim 9, Gaw teaches that the hydrogen sulfide suppressant is selected from the class consisting of free radical inhibitors, redox catalysts and mixtures thereof (column 1, lines 55-57).

13. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over AU 9715194A and in view of Etnyre and Gaw.

14. Regarding claim 10, AU 9715194A disclose that in the production of paving material, sand and gravel are heated at a temperature of 170 to 375C, then the bituminous material is heated to at least 170C, and finally the two are mixed (Abstract). The reference does not expressly disclose the use of sulfur and hydrogen sulfide suppressant in the mixture and is silent as to the amount of sulfur.

Etnyre discloses the use of sulfur in the asphalt because it strengthens the ultimate paving composition and raises the flow point of the composition (column 2, lines 5-25). In addition, the reference discloses forming pellets containing sulfur in an

Art Unit: 1755

amount of 71.4% of the total weight of the pellets (column 5, lines 65-68; column 6, lines 1-5). Etnyre does not disclose the use of hydrogen sulfide suppressant.

Gaw teaches the use of hydrogen sulfide suppressant selected from the class consisting of free radical inhibitors, redox catalysts and mixtures thereof in preparing a cast sulfur-asphalt composition (column 1, lines 55-57). It, further, discloses the iodine, copper salts, copper oxides, iron salts, iron oxides, and cobalt salts and cobalt oxides as some of the conventional redox reagents used as catalysts (column 2, lines 13-17).

It would have been obvious to a person of ordinary skill in the art to modify AU 9715194A in order to include the use of sulfur and H₂S-suppressant as that taught by Etnyre and Gaw motivated by the fact that Etnyre discloses that the use of sulfur in the asphalt composition strengthens the paving composition and raises the flow point of the composition; furthermore, Gaw discloses that because of environmental considerations, it is desirable to reduce the hydrogen sulfide concentrations by use of a H₂S-suppressant.

It is noted that as read in claim 10, the addition of sulfur pellets may be done in any one of the steps of (i) to (iii).

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent No. 4,224,079 to Espenscheid

US Patent No.4,276,093 to Pickermann

Art Unit: 1755

US Patent No. 4,769,288 to Saylak

US Patent No. 5,227,710 to Aho

EP 1 398 351 A1 to Cerino et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pegah Parvini whose telephone number is 571-272-2639. The examiner can normally be reached on Monday to Friday 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PP


J. A. LORENZO
SUPERVISORY PATENT EXAMINER